Apparel and Other Textile Products

(SIC 23)

SIGNIFICANT POINTS

- Nearly half of all workers are sewing machine operators.
- Primarily due to increased imports and new technology, apparel manufacturing is projected to lose 103,000 jobs—more than almost any other industry—over the 2000-10 period.
- Average earnings are below those of other manufacturing industries.

Nature of the Industry

The range of apparel and other textile products is as broad as their uses—suits, rainwear, fur coats, purses, and curtains are just a few examples. Workers in the apparel industry transform fabrics produced by textile manufacturers into these finished goods and many others that fill the Nation's retail stores. By cutting and sewing fabrics or other materials, such as leather, rubberized fabrics, plastics, and furs, workers in this industry help to keep us warm, dry, and in style.

As in other industries, technological advances, globalization, and changing business practices are affecting the apparel industry. One significant change is that more companies are outsourcing inventory and distribution functions to third-party warehouses, while still emphasizing quick response to customer demand. This system allows businesses to focus on the design and marketing of its garments, without concerns about investments in real estate or building leases for a distribution center, or expenses for materials handling equipment or personnel. Its third-party service can provide all warehousing, packing to customer order, and shipping to stores. Through electronic data interchange, information is instantaneously communicated to and received from trading partners. The electronic sharing of data between corporate offices and warehouses has made it possible for businesses to automate other processes. For example, information can be posted to electronic catalogs and buyers can access these catalogs, identify various items by code, and add these items to their buying assortment.

Other technologies affecting the apparel industry include computerized equipment and material transport systems. Computers and computer-controlled equipment aid in many functions, such as design, marking, and cutting. Overhead conveyor systems transport material between sewing machine operators and between processes. Despite these changes, however, the apparel industry—especially its sewing function—has remained significantly less automated than many other manufacturing industries.

The apparel industry traditionally has consisted of production workers who perform a specific function in an assembly line. This organizational philosophy increasingly is being replaced by a team concept, in which garments are made by a group of sewing machine operators organized into production "modules." Each operator in a module is trained to perform nearly all of the functions required to assemble a garment. Each team is responsible for its own performance, and individuals usually receive compensation based on the team's performance. These changes have greatly altered the atmosphere and responsibilities from those of the traditional assembly line.

Fierce competition from abroad has prompted these changes in work structure and technology. Apparel firms also have responded to growing competition by merging and by employing workers in other countries to perform some production functions. Workers in lower-wage countries increasingly are being hired to assemble garments—the most labor-intensive step in the production process—whereas U.S. workers now perform a greater share of the pre-assembly functions and coordinate the process. Such changes in the nature of the domestic apparel industry will certainly continue as globalization proceeds.

Working Conditions

Working conditions depend on the age of the facility, the equipment used, and company policies. Sewing machine operators and other production workers work an average of 37.2 hours weekly, but overtime is common during periods of peak production. Some firms in the industry operate several shifts, and may require employees to work nights or weekends. As more expensive machinery is introduced, companies may add shifts to keep expensive machines from being idle.

Factories are generally clean, well lit, and well ventilated, but sewing areas may be noisy. Operators often sit for long periods and lean over machines. New ergonomically designed chairs and machines that allow workers to stand during operation are some of the means that firms use to minimize discomfort for production workers. Another concern for workers is injuries caused by repetitive motions. The implementation of modular units and specially designed equipment reduces potential health problems by lessening the stress of repetitive motions. In 1999, cases of work-related injury and illness in the apparel industry averaged 5.8 per 100 workers, lower than the 9.2 average in all manufacturing industries, and about the same as the rate for all industries.

The movement away from traditional piecework systems often results in a significant change in working conditions. Modular manufacturing involves teamwork, increased responsibility, and greater interaction among coworkers than do traditional assembly lines.

Employment

The apparel industry provided about 633,000 wage and salary jobs in 2000. As shown in table 1, employment is concentrated in three segments of the industry. Miscellaneous fabricated textile products accounts for about 34 percent of industry employment; women's and misses' outerwear, about 29 percent; and men's and boys' furnishings, about 21 percent. Together, these segments employ 4 out of every 5 workers in the industry.

About two-thirds of jobs in the apparel industry are found in nine States: Alabama, California, Georgia, New Jersey, New York, North Carolina, Pennsylvania, Tennessee, and Texas. The industry had about 23,000 establishments in 2000, with employment concentrated in large firms. Three out of 4 jobs are in establishments with 50 or more workers (chart).

Table 1. Percent distribution of establishments and employment in apparel and other textile products, 2000

Industry segment	Establishments	Employment
Total	100.0%	100.0%
Miscellaneous fabricated textile products	42.7	33.9
Womens and misses outerwear	37.1	29.2
Mens and boys furnishings	8.4	20.8
Miscellaneous apparel and accessories	4.5	4.6
Hats, caps, and millinery	2.1	2.3
Girls and childrens outerwear	1.8	2.5
Womens and childrens undergarments	1.6	3.4
Mens and boys suits and coats	1.1	3.2
Fur goods	0.6	0.2

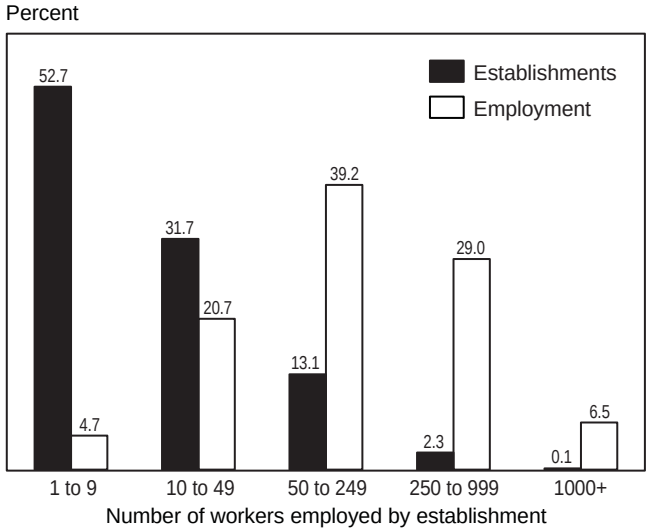
Occupations in the Industry

Production workers account for about 70 percent of total employment in the industry. About 42 of all workers are sewing machine operators (table 2). The apparel industry also employs a small number of workers in administrative support, material-moving, and managerial occupations.

Fashion designers are the artists of the apparel industry. They create ideas for a range of products including coats, dresses, hats, handbags, and underwear. Some are self-employed and work with individual clients, while others cater to fashion specialty stores or high-fashion department stores. Most fashion designers work for apparel manufacturers or retailers, adapting fashion trends for specific markets.

Before sewing can begin, pattern pieces must be made, layouts determined, and fabric cut. *Fabric and apparel patternmakers* create the "blueprint" or pattern pieces for a particular apparel design. This often involves "grading," or adjusting the pieces for different sized garments. Grading once was a time-consuming job, but now it is quickly completed with the aid of a computer. *Markers* determine the best arrangement of pattern pieces to minimize wasted fabric. Traditionally, markers judged the best arrangement of pieces by eye; today, computers quickly help determine the best layout.

Three out of 4 jobs in apparel and other textile products are in establishments with 50 or more workers



Source: U.S. Department of Commerce, ***County Business Patterns***, 1997

Table 2. Employment of wage and salary workers in apparel and other textile products by occupation, 2000 and projected change, 2000-10

(Employment in thousands)

Occupation	Employment, 2000 Number	Employment, 2000 Percent	Percent change, 2000-2010
All occupations	633	100.0	-16.3
Management, business, and financial occupations	33	5.1	-11.3
General and operations managers	9	1.5	-11.2
Industrial production managers	5	0.8	-14.1
Professional and related occupations	12	1.9	1.5
Designers	5	0.8	8.3
Service occupations	6	0.9	-10.3
Janitors and cleaners, except maids and housekeeping cleaners	4	0.7	-8.5
Sales and related occupations	15	2.3	-12.5
Sales representatives, wholesale and manufacturing, except technical and scientific products	7	1.2	-14.5
Office and administrative support occupations	69	10.9	-17.8
Bookkeeping, accounting, and auditing clerks	6	0.9	-20.6
Customer service representatives	5	0.7	-10.5
Shipping, receiving, and traffic clerks	14	2.2	-17.0
Stock clerks and order fillers	8	1.3	-10.6
Office clerks, general	8	1.2	-13.2
Installation, maintenance, and repair occupations	10	1.6	-9.7
Production occupations	438	69.2	-17.9
First-line supervisors/managers of production and operating workers	22	3.4	-17.8
Team assemblers	16	2.5	-8.4
Printing machine operators	6	1.0	5.7
Fabric and apparel patternmakers	7	1.2	-18.5
Pressers, textile, garment, and related materials	12	2.0	-15.5
Sewing machine operators	265	41.8	-20.9
Sewers, hand	13	2.0	-11.7
Textile cutting machine setters, operators, and tenders	16	2.5	-17.9
All other textile, apparel, and furnishings workers	11	1.8	5.4
Helpers—Production workers	10	1.6	-14.7
Inspectors, testers, sorters, samplers, and weighers	20	3.2	-27.3
All other production workers	5	0.8	-10.9
Transportation and material moving occupations	50	7.8	-11.2
Laborers and freight, stock, and material movers, hand	18	2.8	-14.7
Packers and packagers, hand	20	3.2	-6.9

NOTE: May not add to totals due to omission of occupations with small employment

The layout arrangement is then given to *cutters*. In less automated companies, cutters may use electric knives or cutting machines to cut pattern pieces. In more automated facilities, markers electronically send the layout to a computer-controlled cutting machine, and *textile cutting machine setters, operators, and tenders* monitor the machine's work.

Sewing machine operators assemble or finish clothes or other goods such as curtains and purses. Most sewing functions are specialized and require the operator to receive specific training.

Although operators specialize in one function, the trend toward cross-training requires them to broaden their skills.

Pressers receive a garment after it has been assembled. Pressers eliminate wrinkles and give shape to finished products. Most pressers use specially formed, foot-controlled pressing machines to perform their duties. Some pressing machines now have the steam and pressure controlled by computers. *Inspectors, testers, sorters, samplers, and weighers* inspect the finished product to ensure consistency and quality. *Team assemblers* perform all of the assembly tasks assigned to their teams, rotating through the different tasks, rather than specializing in a single task. They also may decide how the work is to be assigned and how different tasks are to be performed.

Training and Advancement

Most production workers are trained on the job. Although a high school diploma is not required, some employers prefer it. Basic math and computer skills are important for computer-controlled machine operators.

Cutters and pressers are trained on the job, while patternmakers and markers usually have technical or trade school training. All of these workers must understand textile characteristics and have a good sense of three-dimensional space. Traditional cutters need exceptional hand-eye coordination. Computers are becoming a standard tool for these occupations as patternmakers and markers increasingly design pattern pieces and layouts on a computer screen, so new entrants will help themselves by learning computer skills. Those running automatic cutting machines could need technical training, which is available from vocational schools.

Sewing machine operators must have good hand-eye coordination and dexterity, as well as an understanding of textile fabrics. They normally are trained on the job for a period of several weeks to several months, depending on their previous experience and the function for which they are training. Unfortunately, opportunity for advancement is limited because of the repetitive nature of their work. Setting a sleeve, for example, is more complicated and requires more training than sewing a side seam. In general, though, new machinery greatly reduces the skill level and training needed to perform many functions.

Modular manufacturing requires operators to perform more than one function, so they usually are trained to perform several duties. In addition to this functional training, workers in a modular system may also be offered courses in the interpersonal and communication skills necessary to work as part of a team. Further, the added responsibility of self-managing their modules may lead these workers to receive training in problem solving and management.

Designers need a good sense of color, texture, and style. In addition, they must understand the construction and characteristics of specific fabrics, such as durability and stiffness. Many employers seek designers who know how to use computer-assisted design. This specialized training usually is obtained through a university or design school that offers 4-year or 2-year degrees. Beginning designers usually receive on-the-job training. They normally need 1 to 3 years of training before they advance to higher level positions.

Those interested in engineering or production management need a bachelor's degree. Degrees in mechanical, chemical, or industrial engineering are common, but related studies also may be accepted. A few programs offer concentrations in apparel and textile production that focus on the unique characteristics and issues associated with apparel production. Universities offering these specializations generally are found in the South and Northeast.

Earnings

Average weekly earnings for production workers were $338 in 2000, significantly lower than the overall $597 per week in manufacturing and $474 in the entire private sector. Table 3 shows average weekly and hourly earnings in various segments of the apparel industry.

Table 3. Average earnings of nonsupervisory workers in the apparel and other textile products industry, 2000

Industry segment	Weekly	Hourly
Total, private industry	$474	$13.74
Apparel and other textile products	338	9.09
Miscellaneous fabricated textile products	390	10.13
Men's and boys suits and coats	341	9.32
Miscellaneous apparel and accessories	331	8.68
Girl's and children's outerwear	325	8.61
Men's and boys furnishings	313	8.54
Women's and children's undergarments	308	8.71
Women's and misses' outerwear	304	8.40

Earnings in selected occupations in apparel and other textile products appear in table 4. Traditionally, sewing machine operators are paid on a piecework basis determined by the quantity of goods they produce. Many companies are changing to incentive systems based on group performance that consider both the quantity and quality of the goods produced. A few companies pay production workers a salary.

Table 4. Median hourly earnings of the largest occupations in apparel and other textile products, 2000

Occupation	Apparel and other textile products	All industries
Industrial production managers	$ 24.54	$ 29.64
Sales representatives, wholesale and manufacturing, except technical and scientific products	17.96	19.40
First-line supervisors/managers of production and operating workers	14.29	19.39
Fabric and apparel patternmakers	11.30	11.57
Printing machine operators	9.20	13.57
Textile cutting machine setters, operators, and tenders	8.98	9.23
Inspectors, testers, sorters, samplers, and weighers	8.19	12.22
Pressers, textile, garment, and related materials	8.02	7.77
Sewers, hand	7.44	8.09
Sewing machine operators	7.42	7.80

The apparel industry has a relatively low unionization rate; about 7.1 percent of apparel workers are union members or are covered by a union contract, compared with 14.9 percent for the economy as a whole. The major union in the apparel industry is the Union of Needletrades, Industrial, and Textile

Employees (UNITE), which was formed in 1995 from the International Ladies' Garment Workers Union and the Amalgamated Clothing and Textile Workers Union.

Outlook

Wage and salary employment in the apparel industry is expected to decline 16 percent through 2010, compared with an increase of 16 percent for all industries combined. The expected decline translates into 103,000 lost jobs over the period—greater than the decrease for almost any other industry. Declining employment will be caused by growing imports, new automation, fierce cost-cutting pressures imposed by retailers, international competition, and mergers and acquisitions. Nevertheless, some job openings will arise as experienced workers transfer to other industries, retire, or leave the workforce.

Changing trade regulations are the single most important factor influencing future employment patterns. Because the apparel industry is labor-intensive, it is especially vulnerable to import competition from nations in which workers receive lower wages. The protection provided to the domestic apparel industry over the past two decades will be significantly reduced in coming years, permitting more apparel imports. For example, the Caribbean Basin Initiative (CBI), which took effect in 2000 and runs through 2008, will eliminate duties and quotas on all garments made up of American components. Because many U.S. firms will continue to move their assembly operations to low-wage countries, this trend is likely to impact lower-skilled machine operators most severely. It will not, however, have as adverse an effect on the demand for some of the presewing functions, such as designing and cutting, because much of the apparel will still be designed and cut in the United States.

New technology will increase the apparel industry's productivity, but unlike other industries, the apparel industry is likely to remain labor-intensive. The variability of cloth and the intricate cuts and seams of the assembly process have been difficult to automate. Machine operators, therefore, will continue to perform most sewing tasks, and automated sewing will be limited to simple functions. In some cases, however, computerized sewing machines will increase the productivity of operators and reduce required training time.

Technology also is increasing the productivity of workers who perform other functions such as designing, marking, cutting, and pressing. Computers and automated machinery will continue to raise productivity and reduce the demand for workers in these areas, but growth in demand for their services generated by offshore assembly sites will help to moderate this decline. These workers also will benefit from the increasing rate at which fashions change, which will produce greater demand for workers employed in those U.S.-based firms that have quick response capabilities.

Continuing changes in the market for apparel goods will exert cost-cutting pressures that affect all workers in the apparel and textile industries. As consumers become more price-conscious, retailers gain bargaining power over apparel producers, and increasing competition limits the ability of producers to pass on costs to consumers, apparel firms are likely to respond by relying more on foreign production and boosting productivity through investments in technology and new work structures. These responses will adversely affect employment of American apparel workers.

The trend today is for apparel firms to merge or consolidate to remain competitive. This trend continues to drive down the number of firms in this industry. In the future, the apparel industry will be dominated by highly efficient, profitable organizations that have developed their dominance through well recognized strategies that enable them to be among the lowest-cost producers of apparel. Consolidation and mergers are likely to result in layoffs of some workers.

Sources of Additional Information

Information about job opportunities in technical and design occupations can be obtained from colleges offering programs in textile and apparel engineering, production, and design. For information about career opportunities, trade developments, and technology, contact:

- American Apparel Manufacturing Association, 2500 Wilson Blvd., Suite 301, Arlington, VA 22201.
  Internet: **http://www.americanapparel.org**

Information on many occupations in apparel manufacturing, including those listed below, appears in the 2002-03 edition of the *Occupational Outlook Handbook*:

- Designers
- Engineers
- Inspectors, testers, sorters, samplers, and weighers
- Textile, apparel, and furnishings occupations